

REMARKS

Pages 9 and 19 have been amended and Claims 1, 9, 12 and 22 have been amended to overcome the Examiner's objections to pages 9 and 19 and to Claim 22, the Examiner's rejection of Claim 1 because of a lack of antecedent for "drive motor" and the Examiner's rejection of Claim 9 because of allegedly duplicate language.

Claim 12 has been amended to provide a clear antecedent for the coupler set forth in line 7 of Claim 12.

The Examiner rejected to Claims 1, 2, 4-8, 11-17 and 20-22 under 35 USC 102(e) as anticipated by U.S. Patent No. 6,427,811 ('811 patent). The rejection is respectfully controverted.

The Examiner is aware that a Section 102 reference must describe the invention claimed, which the '811 patent does not, and that the Examiner cannot attribute functions and operation to such a reference if such functions and operations are not described by the reference itself.

It appears that the Examiner may not be giving full consideration to the fact that neither in the '811 patent nor in the subject application does the electric motor drive the brakes into their release positions. Thus, the hand brake is coupled to the brake rigging by a chain (chain 18 in the '811 patent and chain 68 in the subject application) which consequently means that the hand brake mechanism can exert only a pulling force on the brake rigging (to set the brakes) and cannot exert a pushing force on the brake rigging to move the brakes to the released position. In other words, the hand brake can cause the brakes to move into the positions in which they apply braking forces to the car wheels, but the hand brake merely permits the brakes to move into the release positions when the hand brake mechanism is operated to release the brakes.

If the Examiner will read the '811 patent carefully and in detail, the Examiner will find the following:

- (1) There is no mention that the motor 50, or any part driven by it, is reversible and drives a gear, or the gears, in the brake releasing direction;
- (2) There is no description of the operation of the motor 50 and the clutch 48 when the brakes are to be released; and
- (3) Electrical energization of a dual action solenoid 86 causes a ratchet pawl 75 to either engage a ratchet gear 81 to prevent reverse rotation of the gear 81 and hence, cause holding of the brakes in the positions they have been set, manually or by the motor 50, or move out of engagement with the gear 81 and permit release of the brakes independently of any operation of the motor 50. See description of Figures 4C and 4D.

As to (1) and (2), the '811 patent does say that "the motor 50 rotates shaft 59 through a friction clutch 48" (column 4, lines 27 and 28) and hence, pulls the chain 18. The '811 patent does not say whether the clutch 48 is always engaged except when the solenoid 86 is energized in the release direction or is engaged only when the motor 50 is energized for causing take-up of the chain 18. In the first case, the shaft 59 (drive member) rotates in only one direction and the shaft 59 cannot rotate in the opposite direction before the solenoid 86 is engaged to release the brakes at which latter time the clutch 48 is disengaged so that reversal of the shaft 59 produces no effect on the gear train.

In the second case, the shaft 59 is not coupled to the motor 50 when the brakes are being released (by action of the solenoid 86) and therefore, there is no purpose in rotating the motor 50 or the shaft 59 in the reverse direction.

In any event, without a description of the operation of the motor 50 and the clutch 48, it cannot be said that the '811 patent anticipates the invention under § 102.

As to (3), the teaching of the '811 patent is contrary to what is claimed because holding of the brakes in set position or release of the brakes is controlled solely by the solenoid 86. Thus, even if the motor 50 and rotation of the shaft 59 in one direction can cause pulling of the chain 18 to set the brakes, rotation of the motor 50 and the shaft 59 in the opposite direction is

prevented by the pawl 75 and gear 81 and has no effect on operation of the pawl 75 and gear 81 either before or after the energization of the solenoid 86 and does not cause release of the brakes.

The '811 patent is acknowledged in the third full paragraph on page 2 of the specification of the subject application and the problems therewith are described.

Contrary to the teachings of the '811 patent, the brake drive of the invention does not use an electrically activated solenoid to control the setting and release of the brakes. Instead, the brake drive of the invention uses an electrically operable motor with a rotatable and reversible gear drive member, a detent mechanism coupled to the gears and which either "sets" the brakes in the positions to which they have been moved when the drive member is rotated by the motor in the brake setting direction or permits the brakes to release when the drive member is rotated by the motor in the brake release direction and an electrical control system for controlling the direction of rotation of the drive member.

With respect to the rejection of Claim 1:

- (1) As pointed out hereinbefore, the '811 patent does not mention that the motor 50, or any part driven by it, is reversible and drives a gear, or the gears, in the brake releasing direction. The member 48 is a clutch which couples or uncouples the motor 50 to or from the shaft 59 (column 4, lines 27 and 28) but is not a rotatable and reversible drive member which is alternatively rotatable in a first direction for rotating the gears in the brake setting direction and in a second, opposite direction for rotating the gears in the brake releasing direction. Column 4, lines 1-6 of the '811 patent, to which the Examiner refers, does not state what the Examiner has recited;
- (2) The '811 patent does not describe a detent mechanism responsive to the direction of rotation of the drive member. Thus, aside from the fact that the '811 patent does not describe or suggest a drive member which can

drive the gears in either of two directions, the '811 detent mechanism permits rotation of the gears in the "second" or brake release direction only when the solenoid 86 is energized and not when a drive member is rotated in the second direction. Column 4, lines 51 et. seq., to which the Examiner refers, relate to manual operation of the '811 brake drive and the operation and effect of the solenoid 86 and does not describe what the Examiner has recited; and

- (3) As previously pointed out herein, the '811 patent does not describe or suggest an electrical control system for controlling the direction of rotation of a drive member for setting and releasing the brakes. The Abstract, to which the Examiner refers, states that the "motor, clutch, gearing means, ratchet mechanism. Solenoid and electronic control system – set the brake on the locomotive wheel" (emphasis added). Nothing is said or implied which indicates that the motor and/or clutch is reversed for releasing the brake.

With respect to the rejection of Claim 2 and the other claims dependent on Claim 1, Claim 2 and the other claims are allowable because they depend on allowable Claim 1. In addition, Claim 2 states that the drive shaft is coupled to and rotatable by the electric motor drive member (which is reversible – Claim 1) and that the detent mechanism is coupled to the drive shaft by a drive shaft rotation direction dependent coupler which permits the one gear (coupled to the force transmitting means – Claim 1) to rotate in the brake setting direction but prevents rotation of the one gear in the brake release direction when the drive shaft and one gear are rotated in the brake setting direction (by the drive member – Claim 1) but permits the one gear to rotate in the brake release direction when the drive shaft is rotated (by the drive member – Claim 1) in the brake release direction.

It is respectfully submitted that the Examiner has incorrectly identified the shaft 53 as "a drive shaft rotation direction dependent coupler". The shaft 53 is continuously coupled to the drive shaft and to the detent mechanism in the '811 patent, and the coupling is not dependent on the direction of rotation of the drive shaft.

With respect to the rejection of Claim 4, the clutch 48 of the '811 patent is not coupled to the shaft 59 by 65 which is a shaft, not a coupling, and the clutch 48 is continuously coupled to the shaft 59. Furthermore, shaft 65 is continuously connected to the shaft 59 by gears.

With respect to the rejection of Claim 5, the '811 patent does not disclose a coupling between the electric motor drive member and the drive shaft which is manually releasable.

With respect to the rejection of Claim 11, see Applicant's remarks regarding the rejection of Claims 1 and 2. The '811 patent neither describes nor suggests a bi-directional electrically operable motor or a rotation direction dependent coupler.

With respect to the rejection of Claim 12, dependent on allowable Claim 11 and allowable for this reason, the Examiner's contention that 53/66 comprises (constitutes?) a rotation direction dependent coupler is not understood. The element 53 is a shaft and element 66 is a gear, both of which are continuously coupled to the detent mechanism and to the gear 42 on the '811 patent. Furthermore, although it is not so stated in the '811 patent, the ratchet gear 81 is non-rotatably secured to the shaft 65 (same as shaft 43) in order for the detent mechanism of the '811 patent to operate as described, i.e., prevent counter rotation of the shaft 43 (also identified as 63; see Figure 4D; see column 4, lines 56-62). Therefore, the '811 patent does not have a releasable coupling between the ratchet gear and the rotatable gear.

With respect to the rejection of Claims 13-15, it has been pointed out hereinbefore that the '811 patent does not describe or suggest an electric motor which can be caused to rotate a drive member alternately in either of two directions or a control system which would so operate the motor.

With respect to the rejection of Claim 16, the Examiner apparently has misinterpreted the '811 patent. The elements 85 and 86 are, respectively, a pawl activating rod and a solenoid for actuating the rod 85 (see column 5, lines 10-16). Therefore, the rejection is inapplicable.

With respect to the rejection of Claim 17, the '811 patent does say that "load information is provided to the control system via motor current feedback or load cell feedback" and "the control system provides feedback to the motor". However, the '811 patent does not state what is done with the feedback or how it is used. Therefore, since there is more than one use for such feedback, the '811 patent does not describe what is set forth in Claim 17 in the last four lines thereof beginning with "a comparator" in line 4.

With respect to the rejection of Claim 20, it has been pointed out hereinbefore that the '811 patent does not describe rotation of the drive member in either of two directions for driving the gears in either of two directions. Therefore, the '811 patent also does not describe controlling the direction of rotation of the drive member by received electromagnetic signals.


With respect to the rejection of Claims 21 and 22, the Examiner is respectfully referred to the comments on the rejection of Claims 1 and 12 set forth hereinbefore.

The allowability of dependent Claims 3, 9, 10, 18 and 19 if rewritten is noted, but since the claims on which such claims depend are allowable, rewriting of Claims 3, 9, 10, 18 and 19 is not necessary.

For the foregoing reasons, all of the claims of the application are allowable, and reconsideration and allowance are respectfully requested.

Respectfully submitted,

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I hereby certify that the foregoing Amendment and the attachments are being deposited with the United States Postal Service as Express Mail under label no. EV 586234595 US in an envelope addressed to: Mail Stop AMENDMENT, Commissioner for Patents, PO Box 1450, Alexandria, VA 22313-1450, on the date indicated below:

Date: 01 December 2004

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